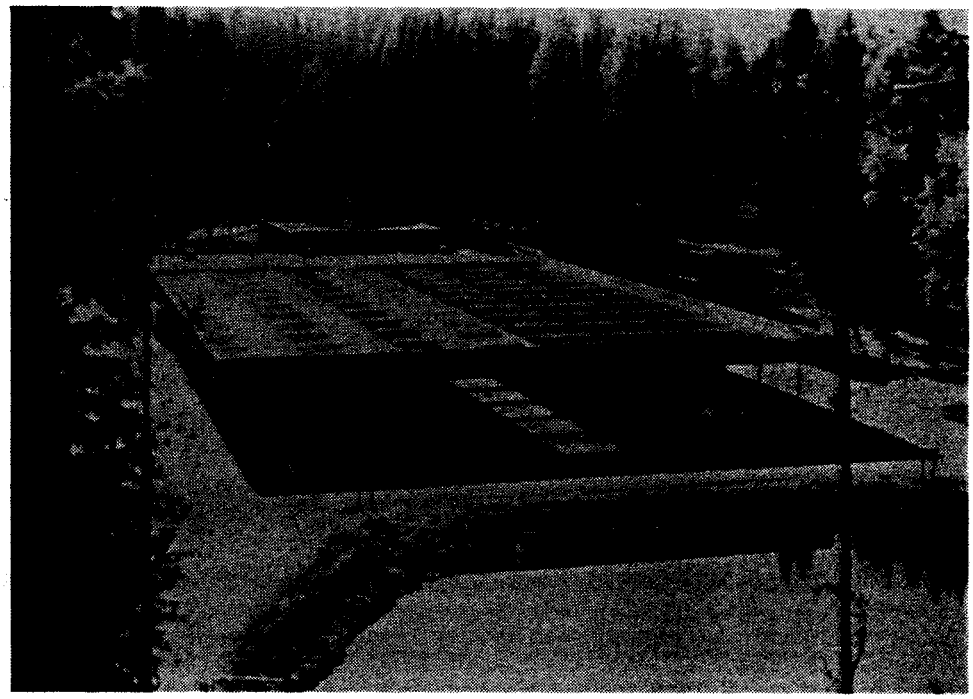
MCCALL HATCHERY ANNUAL REPORT

October 1, 1984 to September 30, 1985



by

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ABSTRACT

McCall Hatchery produced 671,432 cutthroat trout fry (508,992 Henrys Lake cutthroat and 162,440 westslope cutthroat fry) for a total weight of 1,421 pounds. We fed 980 pounds of fish feed for a conversion rate of 0.69 pounds of feed fed to produce one pound of fish. An additional 10,000 westslope cutthroat fry remained on hand for replacement broodstock for Fish Lake.

An additional 161,576 rainbow trout fry were produced, weighing 423 pounds. They received 190 pounds of fish feed for a conversion rate of 0.45 pounds of feed to produce one pound of fish.

McCall Hatchery personnel stocked 163 mountain lakes with 104,234 westslope cutthroat and 52,123 rainbow trout fry in regions 1, 2, 3, and 6. An additional 18 lakes and reservoirs, along with 24 streams, were planted with 120,256 catchable-sized rainbow (36,245 pounds), which were redistributed from American Falls and Grace hatcheries. No major disease problems were experienced in 1985.

Spawntaking operations at Fish Lake resulted in the trapping of 1,405 adult westslope cutthroat, which produced 362,858 eggs from 834 females spawned (435 eggs per female).

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INTRODUCTION

McCall Hatchery was constructed in 1979 by the Army Corps of Engineers as part of the Lower Snake River Compensation Plan, which was authorized by Congress to compensate for losses caused by the Lower Snake River dams (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite). The principal purpose of this hatchery is to produce summer chinook salmon, but McCall Hatchery is also used to redistribute catchable-sized rainbow trout, to hatch and rear various trout species for stocking state waters, and for supplying fry to other state hatcheries. Funding is provided by Idaho Department of Fish and Game (IDFG) for all trout programs for the period April 1 to September 30. Funds are also provided for a Hatchery Superintendent I stationed at McCall Hatchery to supervise these programs. This report covers all programs funded by the Idaho Department of Fish and Game.

McCall Hatchery is located along the North Fork of the Payette River approximately one-fourth mile below Payette Lake in the city of McCall, Idaho. Hatchery water is obtained from Payette Lake via a 36 in. diameter underground pipeline. Water inlets at the surface and at a depth of 50 ft. provide the capability of obtaining the best water temperature available. The hatchery requires 20 cfs of water for normal operations.

Fish rearing and holding facilities at McCall Hatchery include: 26 eight-tray stacks of Heath incubators, 14 indoor concrete vats (4 ft. x 40 ft.), 2 outdoor concrete rearing ponds (42 ft. x 200 ft.), 2 fiberglass Heath troughs (1.75 ft. x 15.5 ft.), and 1 outdoor collection basin (15 ft. x 100 ft.). Trout eggs are hatched in the incubators, and transferred to the vats at the "button-up" stage. Rainbow catchables are held in the collection basin prior to redistribution. No trout are reared in the outside rearing ponds because these are used exclusively for the salmon.

OBJECTIVES

The state-funded objectives of McCall Hatchery are to:

1. Redistribute approximately 35,000 pounds of catchable-sized rainbow trout reared at other state hatcheries into 24 streams, 18 lakes, and reservoirs in regions 2 and 3.

2. Hatch and rear approximately 1,000,000 trout fry for stocking in state waters and redistribution to other hatcheries.

3. Stock approximately 600 high mountain lakes in regions 1, 2, and 3 on a three-year rotation basis.

4. Operate and maintain a fish trap and broodstock operation at Fish Lake for the purpose of obtaining westslope cutthroat trout eggs.

FISH PRODUCTION

McCall Hatchery personnel reared three different species of trout with widely varying survival rates, ranging from 69.9% (eyed egg to fry planting) in the westslope cutthroat trout to 81.0% in the Henrys Lake cutthroat trout (Table 1). McCall Hatchery produced 508,992 Henrys Lake cutthroat fry (1,156 pounds), 162,440 westslope cutthroat fry (265 pounds), and 161,576 rainbow fry (423 pounds) during 1985.

No trout were on hand at the beginning of the 1985 fish year, but 10,000 Westslope cutthroat remained on hand for stocking Fish Lake after October 1, 1985.

Henrys Lake cutthroat trout and Mt. Lassen rainbow trout eggs were obtained as eyed eggs on May 17, and the westslope eggs were taken from our own broodstock at Fish Lake from April 29 to May 23 (Table 2).

FISH HEALTH

No major fish health problems were experienced during 1985; although minor problems, such as internal fungus and light infestations of costia, were diagnosed in our rainbow fry by Pat Chapman, Fish Pathologist, IDFG. No mortality could be attributed to these problems. In the previous two years, nutritional gill disease had been a problem, especially in the westslope cutthroat. In 1985, we used exclusively BioDiet (BioProducts Inc.) starter feed and 1.00 mm grower size feeds instead of dry trout feed and obtained very good results. The fish did not experience any nutritional gill problems, and they remained in excellent health until being planted.

Once again, the westslope cutthroat broodstock at Fish Lake were tested for virus by Pat Chapman, Fish Pathologist, IDFG. Tissue samples and ovarian fluid samples were taken from 61 adults, with all samples being negative.

FISH TRANSFERS AND STOCKING

McCall Hatchery transferred trout fry to three other state-operated hatcheries during the year (Table 3). A total of 58,206 (151.5 pounds) and 61,412 eyed westslope cutthroat eggs were shipped to Clark Fork Hatchery for use in northern Idaho programs (Table 3).

An additional 35,641 rainbow fry (150 pounds) were transferred to Mackay Hatchery for high mountain lakes planting.

Hagerman Hatchery received 50,061 (111 pounds) Henrys Lake cutthroat for stocking Region 4 waters.

Table 1. Trout production at McCall Hatchery.

Species	Eggs	Percent eyed	Fish produced	Percent survival	Pounds produced
Cutthroat[a]	362,858	84.9	162,440[c]	61.3	265
Cutthroat[b]	629,187	--	508,992	81.0	1,156
Rainbow	225,000	--	161,576	71.8	423
TOTALS	1,217,045	84.9	832,456	68.4	1,844

[a]Westslope cutthroat.
[b]Henrys Lake cutthroat.
[c]A total of 61,412 eyed westslope cutthroat were shipped to Clark Fork and are not added to this number.

Table 2. Sources of trout eggs received at McCall Hatchery.

Species	Date received	Egg stage	Source
Westslope cutthroat	4/29-5/23	Green	Fish Lake
Henrys Lake cutthroat	5/17	Eyed	Henrys Lake Hatchery
Rainbow trout	5/17	Eyed	Mt. Lassen Hatchery

Table 3. Transfers of trout from McCall Hatchery.

Date	Species	Number per pound	Number transferred	Receiving station	Pounds transferred
8/20	Henrys Lake cutthroat	451.0	50,061	Hagerman	111
8/20	Mt. Lassen rainbow	237.6	35,641	Mackay	150
9/19	Westslope cutthroat	384.2	58,206	Clark Fork	152
TOTALS			143,908		413

Catchables

McCall Hatchery is a redistribution station for stocking catchable-sized rainbow trout in regions 2 and 3 involving Adams, Idaho, Valley, and Washington counties. Catchables were supplied from Grace and American Falls hatcheries from April through August. Stocking began in mid-May and was concluded in late August.

This year, McCall Hatchery stocked 17 lakes and reservoirs along with 23 rivers and streams with a total of 120,256 catchable-sized rainbow trout, averaging 3.3 fish per pound for **a** total of 36,245 pounds of fish planted. These numbers are up slightly from 1984 due to four new local ponds being added to the allocation list in 1985.

Due to an early runoff, 1985 was an extremely low water year. Most stocking had to be completed before mid-July due to excessive water temperatures and low dissolved oxygen.

Fry

McCall Hatchery produced **a** total of 368,241 (810 pounds) of Henrys Lake cutthroat fry for planting the Teton River during late August. An additional 25,720 (59 pounds) of Henrys Lake cutthroat were planted in Horsethief Reservoir with the remaining 64,970 (176 pounds) of Henrys Lake cutthroat being stocked in Goose Lake in Region 3.

Warm Lake in Region 3 received a total of 65,851 (243 pounds) of Mt. Lassen rainbow trout fry during the month of September. Our remaining 9,933 (36 pounds) of Mt. Lassen trout fry were used to stock Granite Lake in Region 3.

A total of 10,209 (66 pounds) westslope cutthroat fry remained on hand to restock Fish Lake in late October 1985 to provide future broodstock (Table 4).

Mountain Lakes

McCall Hatchery stocks approximately 600 mountain lakes with trout fry in regions 1, 2, and 3 on a three-year rotation basis. Lakes in the Snake, Boise, Salmon, and Clearwater River drainages make up our stocking area. Most lakes are stocked by means of a fixed-wing aircraft (Cessna 185) equipped with a fish release hopper to facilitate release of the fry. Planting began on July 7 and was completed on September 4. Due to forest fires and dense smoke, planting had to be delayed in some areas around McCall. A total of 11 flights at a cost of $4,375.50 (29 hours, 10 minutes of flight time) were required to plant 159 mountain lakes with 104,234 (113 pounds) westslope

Table 4. Lowland waters stocked with trout fryby McCall Hatchery.

Date	Species	Water stocked	Number stocked	Pounds stocked
8/20	Henrys Lake cutthroat	Teton	368,241	810
8/16	Henrys Lake cutthroat	Horsethief Reservoir	25,720	59
8/16	Henrys Lake cutthroat	Goose Lake	50,228	116
9/11	Henrys Lake cutthroat	Goose Lake	14,742	60
9/18	Mt. Lassen rainbow	Warm Lake	30,140	110
9/19	Mt. Lassen rainbow	Granite Lake	9,933	36
9/25	Mt. Lassen rainbow	Warm Lake	35,711	133
TOTALS			534,715	1,324

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cutthroat and 50,623 (88 pounds) of rainbow trout fry. An additional three lakes were planted by backpacking in regions 3 and 6. The average cost per lake planted was $27. This is slightly higher than 1984's average ($23.50 per lake) due to bad weather, which canceled partially completed flights and Region 1 lakes which needed to be planted in 1985.

SPAWNING OPERATIONS

McCall Hatchery operates and maintains a trapping and holding facility at Fish Lake for spawning westslope cutthroat trout. This facility consists of a velocity barrier, fish ladder and trap, two holding ponds, and a spawning platform. Fish Lake is located approximately six miles west of McCall Hatchery and is owned by IDFG. The trapping and holding facility located on Fish Creek is on land owned by Boise Cascade Corporation.

The trap was installed on April 10 and trapping was terminated on May 23. A total of 1,405 westslope cutthroat adults were trapped, of which 949 were females and 456 were males. The sex ratio of adults was 2.1 females per male, up significantly from 1.45 females per male in 1984. I feel the increase is due to a large number of returning immature fish that did not display definite sexual characteristics and were, consequently, classified as females. As in previous years, there was quite a range in size. Females ranged from 6.25 in. to 18.5 in. in total length with a mean length of 12.2 in. This is down significantly from the total mean length of 14.1 in. for females trapped in 1984. This decrease is attributed to a large number of fish in the 10 in. to 12 in. class. Males ranged from 8.75 in. to 17.25 in. with a mean total length of 11.9 in., which is almost identical to the 1984 mean total length of 11.75 in.

Spawning operations began on April 29 and concluded on May 23. During this period, 834 females were spawned, producing 362,858 eggs for an average of 435 eggs per female. An additional 115 "green", or immature, females were released upstream for natural spawning.

FISH FEED UTILIZED

A total of 950 pounds of Moore-Clark OMP IV ($474.62) and 220 pounds of BioProduct's BioDiet ($298.76) was fed to our trout fry (Table 5). In past years, a dry diet was used for feeding trout fry at McCall Hatchery; but due to the availability of excess feed from a feed study conducted at McCall Hatchery, OMP IV and BioDiet were the diets utilized. Because the feed was excess, the cost of the. feed was not actually charged to the state project.

Table 5. Fish feed fed to trout fry at McCall Hatchery in 1985.

Brand	Feed size	Pounds fed	Cost[a]
BioDiet	Swim-up	88	$ 119.50
BioDiet	1.0 mm	132	179.26
Moore-Clark (OMP IV)	1/32 in.	950	474.62
Moore-Clark (OMP II)	1/8 in.	750	288.75
TOTALS		1,920	$1,062.13

[a]The feed was excess from another project, and was not actually charged to this project.

In past years, we have experienced outbreaks of nutritional gill disease in both our westslope and Henrys Lake cutthroat fry when we were feeding a dry diet. This year using the moist diets, no problems or major losses were encountered. The results of 1985 indicates the possible need to research and compare the three diets (OMP IV, BioDiet, and a dry diet) for cost effectiveness.

An overall conversion rate of 0.69 pounds of feed fed to produce one pound of fish was attained, while the total feed cost to produce one pound of fish was $1.30.

An additional 750 pounds of Moore-Clark OMP II 1/8 in. feed ($288.75) was fed to our catchable-sized rainbow trout; but due to the. fact that these fish were held for such short periods of time (1 to 2 weeks), no conversion rate or weight gain could be computed.

SPECIAL STUDIES

In 1985, all eggs taken from westslope cutthroat at Fish Lake had to be spawned into a colander to remove excess ovarian fluid before fertilization. To take this cleaning process one step further and to increase fertilization rates, we took half of the eggs and dipped them into a 1.37% solution of sodium bicarbonate prior to fertilization, and fertilized the remaining eggs by adding sperm and water to a dry bucket. We used lots 3, 4, and 5 to perform our test. To gauge the effectiveness of both methods, the eggs were incubated separately, and the eye-up percentages were compared (Table 6).

Our findings were that the eggs rinsed in 1.37% sodium bicarbonate solution had **a** slightly lower eye-up rate (80.5%) than the control groups (86.8%).

Table 6. Eye-up percentages of spawning test lots at Fish Lake rinsed in a 1.37% sodium bicarbonate solution.

Lot #	Total # green eggs	Total # eyed eggs	Overall eye-up	Rinsed % eye-up	Control % eye-up
3	73,914	58,568	79.2	77.4	80.9
4	87,549	72,324	82.6	83.3	86.0
5	62,604	54,496	87.0	80.9	93.6
TOTALS	224,067	185,388	82.7	80.5	86.8

ACKNOWLEDGMENTS

McCall Hatchery staff included: Bill Hutchinson, Fish Hatchery Superintendent II; David Parrish, Fish Hatchery Superintendent I; Bob Esselman, Fish Culturist; Willie Young, Bob Poertner, Stan Bercovitz, and Dan Averill, biological aides; and John Gebhards, Laborer.

Thanks are also due to Fred Edwards, Ed Bottums, Walt Arms, and Eldon Anglen, Conservation Officers, for their help in planting rainbow catchables; and to Don Anderson, Regional Fishery Manager, for his cooperation.

Special thanks goes to Jerry Lockhart, District Conservation Officer, for his long hours helping with the Fish Lake spawning operation and the rainbow catchable planting.

Appendix A. Rivers and streams stocked with catchable rainbow trout by McCall Hatchery.

Rivers and streams	Catalog number
Big Creek	09-14-09-0000
Boulder Creek	07-12-10-0000
Clear Creek	09-14-08-0000
Crooked River	05-14-09-0000
East Fork Lost Valley Creek	08-26-02-0003
East Fork Fork Salmon River	07-24-13-0000
Gold Fork	09-13-14-0000
Goose Creek	07-12-14-0000
Hornet Creek	08-22-00-0000
Johnson Creek	07-24-13-0008
Kennally Creek	09-14-14-0001
Lake Fork	09-14-17-0000
Lick Creek	05-14-12-0000
Little Salmon River	07-12-00-0000
Middle Fork Weiser River	08-19-00-0000
North Fork Lake Fork Creek	09-14-17-0005
North Fork Payette River	09-14-00-005, 0006, 0007
Rapid Creek	09-14-14-0002
Skookumchuck Creek	07-08-00-0000
Slate Creek	07-09-00-0000
Weiser River	08-00-01-0000, 02-0000
West Fork Weiser River	08-26-00-0000

Appendix B. Lakes and reservoirs stocked with catchable rainbow trout by McCall Hatchery.

Lakes and reservoirs	Catalog number
Brown's Pond	09-00-00-0363
Brundage Reservoir	07-00-00-0187
Corral Creek Reservoir	09-00-00-0261
Cruzen-Brown's Pond	09-00-00-0330
Goose Lake	07-00-00-0189
Granite Lake	09-00-00-0380
Hazard Lake	07-00-00-0251
Herrick Reservoir	09-00-00-0251
Little Payette Lake	09-00-00-0326
Lower Boulder Reservoir	09-00-00-0320
Payette Lake	09-00-00-0364
Poor Man's Pond	09-00-00-0322
Rowland's Pond	09-00-00-0328
Seven Devils Lake	07-00-00-0113
Upper Payette Lake	09-00-00-0392
Warm Lake	07-24-20-0001
Warren Dredge Pond 11	07-00-00-0310
Warren Dredge Pond 12	07-00-00-0313

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